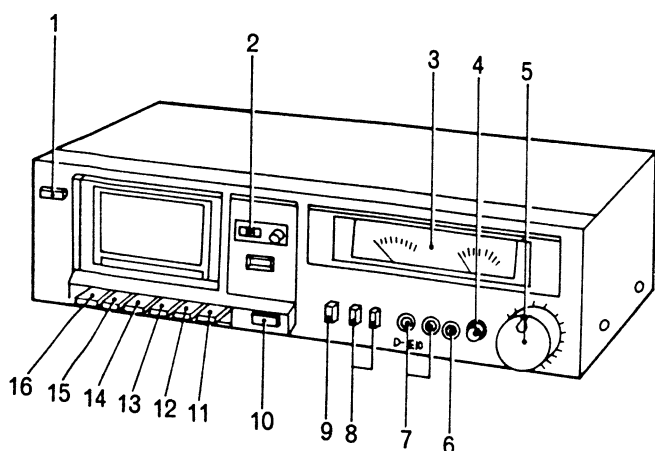




# HITACHI

## SERVICE MANUAL

**TK****No. 1526E****D-E10****(U, C, FS, BS, AU, W)**

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### KEY TO ILLUSTRATIONS

- |                              |                         |
|------------------------------|-------------------------|
| 1. Power (Mains) switch      | 9. Dolby NR switch      |
| 2. Tape counter              | 10. Eject button        |
| 3. VU meters                 | 11. Pause button        |
| 4. Recording balance control | 12. Stop button         |
| 5. Recording level control   | 13. Fast forward button |
| 6. Headphone socket          | 14. Playback button     |
| 7. Microphone sockets        | 15. Rewind button       |
| 8. Tape select switches      | 16. Record button       |

### SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes.  
Critical parts are marked with  $\Delta$  in the schematic diagram and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

## STEREO CASSETTE TAPE DECK

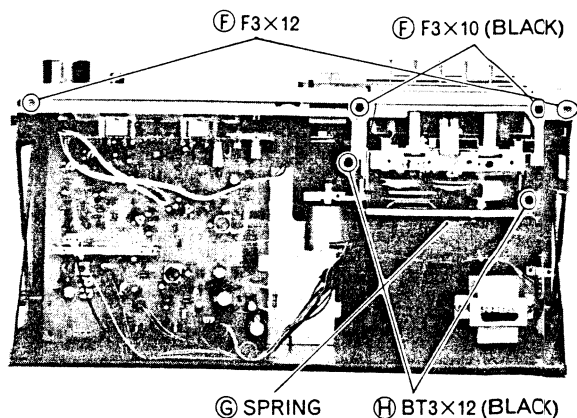
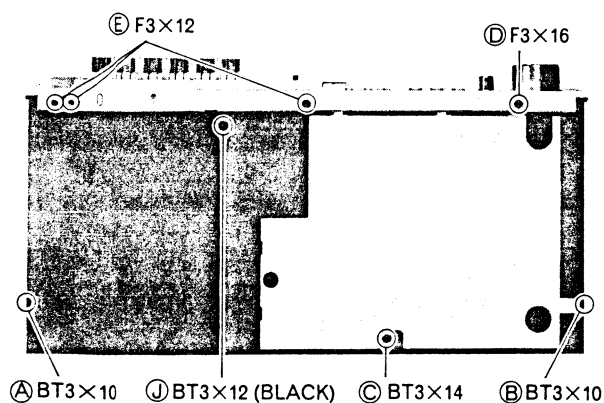
**March 1981****TOKAI WORKS**

## SPECIFICATIONS

Semi-conductors :		Wow and Flutter :	0.07% (WRMS) 0.20%*
ICs :	3	Input Sensitivity and Impedance :	
Transistors :	10 (U, C, BS) 11 (FS, AU, W)	Microphone :	0.3mV, 300 ohms ~ 5k ohms
Diodes :	7 (U, C, BS) 10 (FS, AU, W)	Line in :	60mV, 47k ohms or more
LED :	1	DIN (Record/Playback) :	0.3mV, 3k ohms (FS, AU, W)
Track System :	4 track 2 channel stereo	Output Level :	400mV or more
Tape :	Cassette tape (C-30, 60, 90)	Output Load Impedance :	
Tape Speed :	4.75cm/s	Line out :	50k ohms or more
Recording System and		DIN (Record/Playback) :	50k ohms or more (FS, AU, W)
Bias Frequency :	AC bias, 85 kHz	Headphone :	8 ohms ~ 2k ohms
Erasing System :	AC erase	Distortion :	1.2% (1 kHz, 0VU)
Erase Ratio :	65 dB or more (at 1 kHz)	Crosstalk :	60 dB or more (at 1 kHz)
Frequency Response :		Channel Separation :	30 dB or more (at 1 kHz)
ER/UD (NOR) :	20 Hz ~ 15 kHz 30 Hz ~ 14 kHz (±3 dB) 30 Hz ~ 14 kHz *	Power Supply :	AC 120V, 60 Hz (U, C) AC 100-110V/115-127V/ 200-220V/230-250V, 50/60 Hz (W) AC 220V, 50 Hz (FS) AC 240V, 50 Hz (BS, AU)
EX/SX (CrO <sub>2</sub> ) :	20 Hz ~ 16 kHz 30 Hz ~ 15 kHz (±3 dB) 30 Hz ~ 15 kHz *	Power Consumption :	9W
ME (Metal) :	20 Hz ~ 17 kHz 30 Hz ~ 16 kHz (±3 dB) 30 Hz ~ 16 kHz *	Dimensions :	110(H) × 435(W) × 203(D)mm
S/N (Signal to Noise Ratio) :		Weight :	3.2kg
Dolby NR OFF :	57 dB (Weighted A, Reference 3% THD Metal Tape) 57 dB*	Motor :	Electronically controlled DC motor
Dolby NR ON :	64 dB (Weighted A, Reference 3% THD Metal Tape) 64 dB*	Heads :	Metal SL Record/playback head Three-gap ferrite Erase head

\* According to DIN 45 500

## DISASSEMBLY



## 1. Cassette door

Depress the eject button to open the cassette holder.  
Lift up the cassette door to remove it.

## 2. Upper cover

Remove (A) and (B) (two) screws.

## 3. Bottom cover

Remove (B), (C) and (D) (three) screws.

## 4. Front panel

1) Remove two knobs (REC level, REC balance).  
2) Remove (D), (E) and (F) (eight) screws.

## 5. Cassette chassis

1) Remove (G) spring.  
2) Remove (H) and (J) (three) screws.

## ADJUSTMENT

Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol. Also, unless specially indicated otherwise, set the switches and controls to the positions indicated in the table.

Symbol No.	Switches and Controls	Position	Symbol No.	Switches and Controls	Position
S2, S3	Tape select switches	ER/UD (NOR)	RV1	Record level control	Max.
S4	Dolby NR switch	OFF	RV2	Record balance control	Center
S7 (FS, AU, W)	Input select switch	LINE			

\* According to DIN 45 500

Item	Adjustments	Measuring Instrument and Connection			Check Tape	Mode	Adjusted Position	Adjusted Value	Remarks
		Measuring Instrument	Input Terminal	Output Terminal					
1	Tape speed	• Frequency counter	—	LINE OUT	MTT-111, 3000 Hz (3150 Hz*)	Playback	Semi-variable resistor in the motor	3000 Hz +30 Hz -10 (3150 Hz*)	See Note 1
2	Head azimuth	• VTVM	—	LINE OUT	MTT-316, 12.5 kHz	Playback	Azimuth adjusting screw	Output Max.	See Note 2
3	Playback gain	• VTVM	—	TP1L, R	MTT-150 400 Hz, 20m Maxwell	Playback	RT1L, R	580mV	See Note 3
4	VU meter						RT3	L ch VU meter indicates the same level as the R ch VU meter.	See Note 4
5	Bias current	• VTVM	—	TP2L, R and TP3L, R	—	Record	RT4L, R	15V	See Note 5
		Set RT2L, R to the center.							
		• Audio oscillator (1.25kHz/12.5kHz, 0VU-20dB) • Attenuator • VTVM	LINE IN	LINE OUT	ER/UD tape	Record/playback	RT4L, R	Output difference within $\pm 1$ dB	See Note 6
6	Record/playback output level	• Audio oscillator (400Hz, 0VU)	LINE IN	—	ER/UD tape	Record/playback	RT2L, R	VU meter indicates 0VU $\pm 0.5$ VU	See Note 7

## Note :

- Adjust within 30 sec. after heat-running for more than 20 minutes.
- When the maximum values of both channels are different, tune to the maximum value of the L channel. In this case, the difference between the maximum values of both channels should be within 2 dB.
- Playback a test tape (MTT-150, 400 Hz 20m Maxwell) and adjust RT1L, R so that the level of TP1L, R become 580mV.
- With the condition shown in item 3, adjust RT3 so that the L channel VU meter indicates the same level as the R channel VU meter. Check that, however, the reading of the VU meter is within Dolby mark (  $\square\square$  )  $\pm 1.5$  VU at that time.
- Adjust RT4L, R so that the bias voltage between TP2L, R and TP3L, R becomes 15V in the recording mode.

- 1) Set RT2L, R to the center.
- 2) Feed a 1.25 kHz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the VU meters indicate 0VU. Then, adjust the attenuator to lower the output level by 20 dB.
- 3) Record the signal on ER/UD tape with the conditions of item 2), then continue to record with the audio oscillator frequency set to 12.5 kHz.
- 4) Playback the recorded signal and adjust RT4L, R so that the output level difference between two frequencies is within  $\pm 1$  dB measured at the LINE OUT jacks.

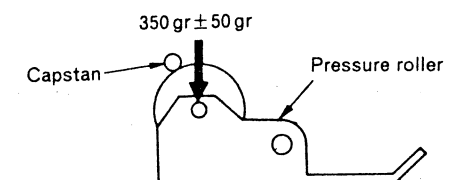
- 1) Feed a 400 Hz signal to the LINE IN jacks in the recording mode and adjust the audio oscillator output so that the VU meters indicate 0VU.
- 2) Record the signal on ER/UD tape with the conditions of item 1).
- 3) Playback the recorded signal and adjust RT2L, R so that the VU meters indicate 0VU  $\pm 0.5$  VU.

## INSPECTION OF MECHANISM

Check Item			Reference Value	Remarks
1	Pressure of pressure roller		350 $\pm$ 50 gr	Note 1
2	Torque	Take-up	35 to 60 gr-cm	Measure in playback mode
		Fast forward	70 to 120 gr-cm	Measure in Fast forward mode
		Rewind	70 to 120 gr-cm	Measure in Rewind mode
3	Back tension	Take-up side	6 gr-cm	With counter
		Supply side	1 to 3 gr-cm	Without counter
4	Flywheel thrust gap		0.05 to 0.5mm	—
5	Brake force		More than 15 gr-cm	—

## Note 1. Pressure of pressure roller

Set this unit in the playback mode and press the pressure roller in the direction of the arrow using a fan type tension gauge, and measure the pressure when the pressure roller is released from the capstan.



## LUBRICATION

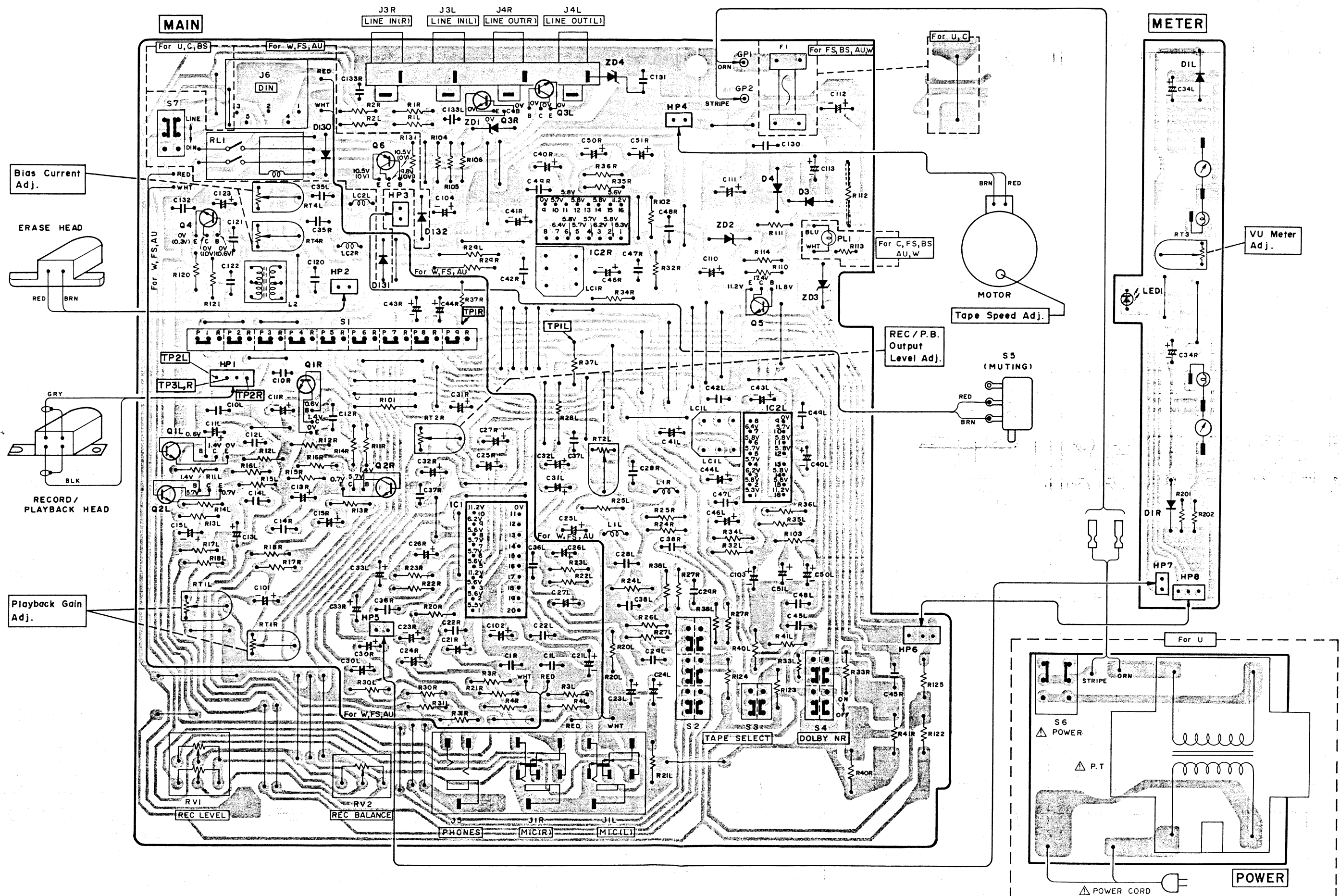
Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point.  
Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use.  
Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication		Oil or Grease
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (#1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)
Spring resonance prevention		Froil (GB-TS-1)

### SCHEMATIC DIAGRAM



## CIRCUIT BOARD DIAGRAM



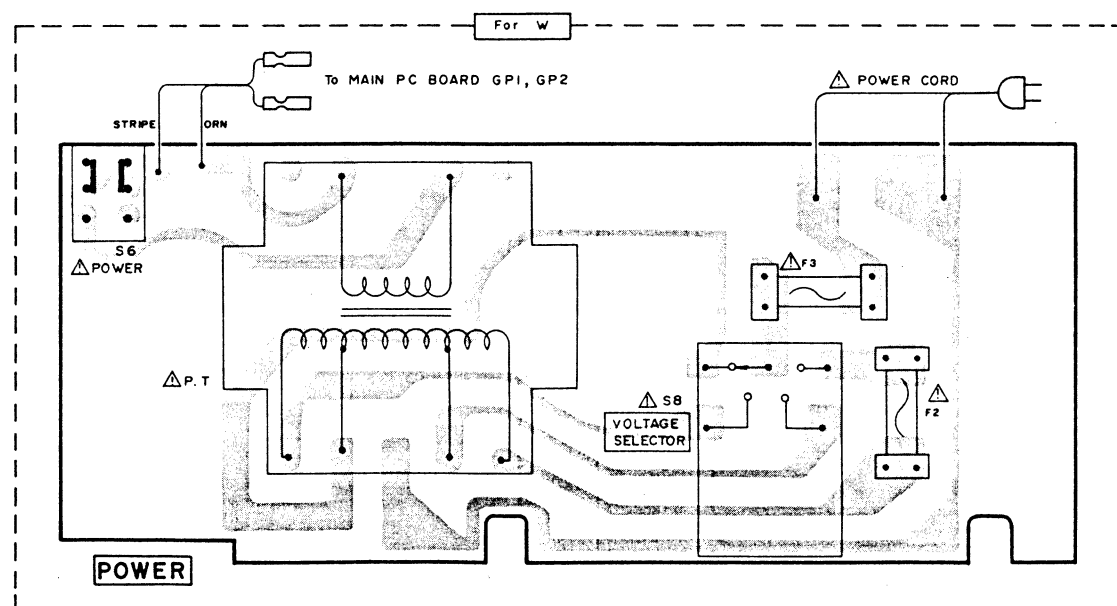
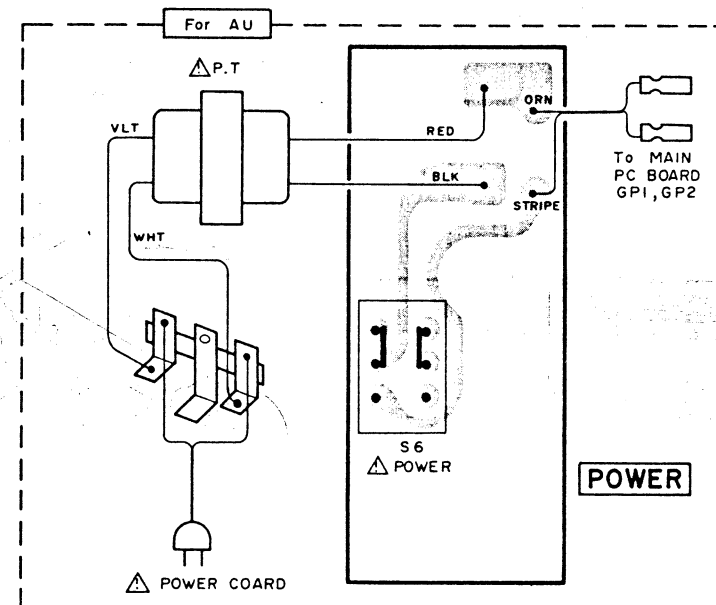
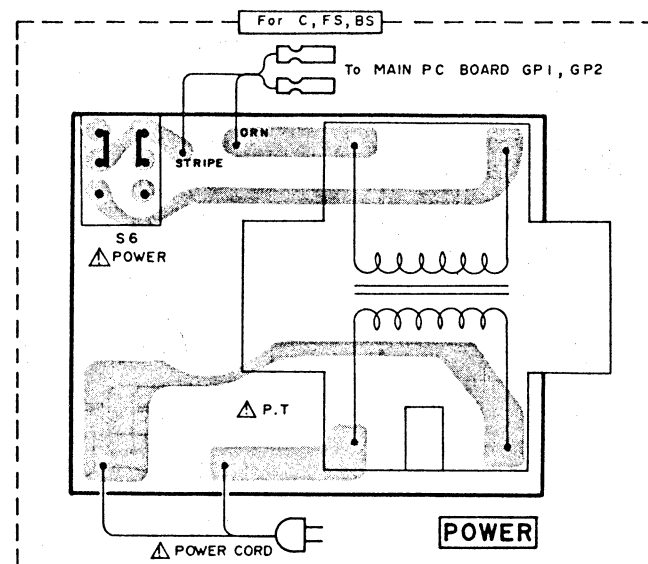
# Note

1. Voltage measured at base of chassis with minimum volume control and no signal.
2. Nomenclature of Resistors and Capacitors.

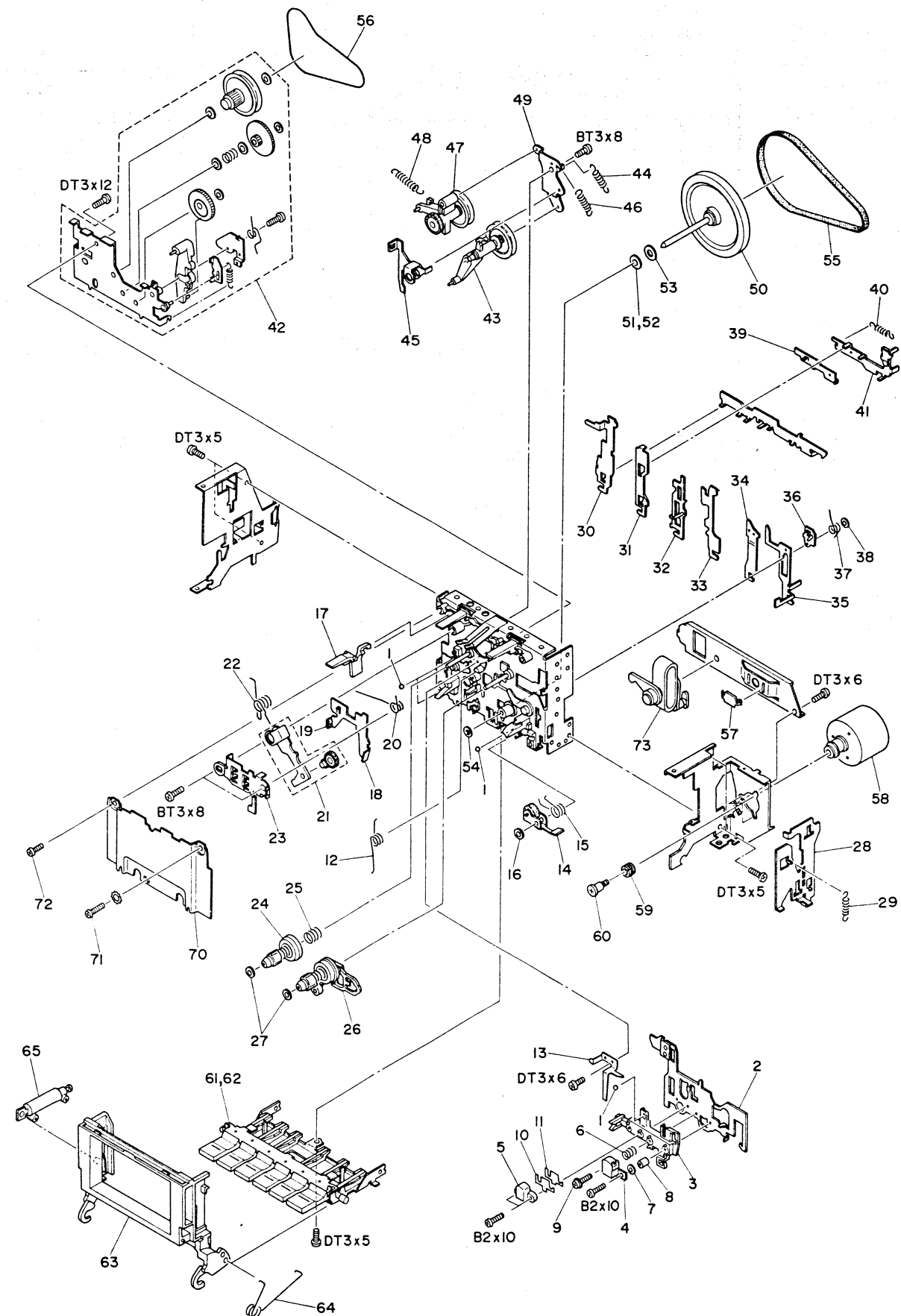
Circuit No.		
R101 150-K RS-1-K	Value	No indicated $\Omega$ (Ohm) M : 1000k $\Omega$
	Tolerance	No indicated $\pm 5\%$ K : $\pm 10\%$ M : $\pm 20\%$
	Wattage	No indicated $\frac{1}{4}W$
	Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film

Circuit No.		
C101 0.001-M	Value	No indicated $\mu F$ P : PF
	Tolerance	No indicated $\pm 10\%$ J : $\pm 5\%$ M : $\pm 20\%$ Z : $+80\%$ -20% D : $\pm 0.5pF$ C : $\pm 0.25pF$
	Sort	Ceramic Electrolytic Mylar Polyester Styrol
	Voltage	No indicated 50WV

3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with \*, use specified ones stated on parts list since required temperature characteristics.



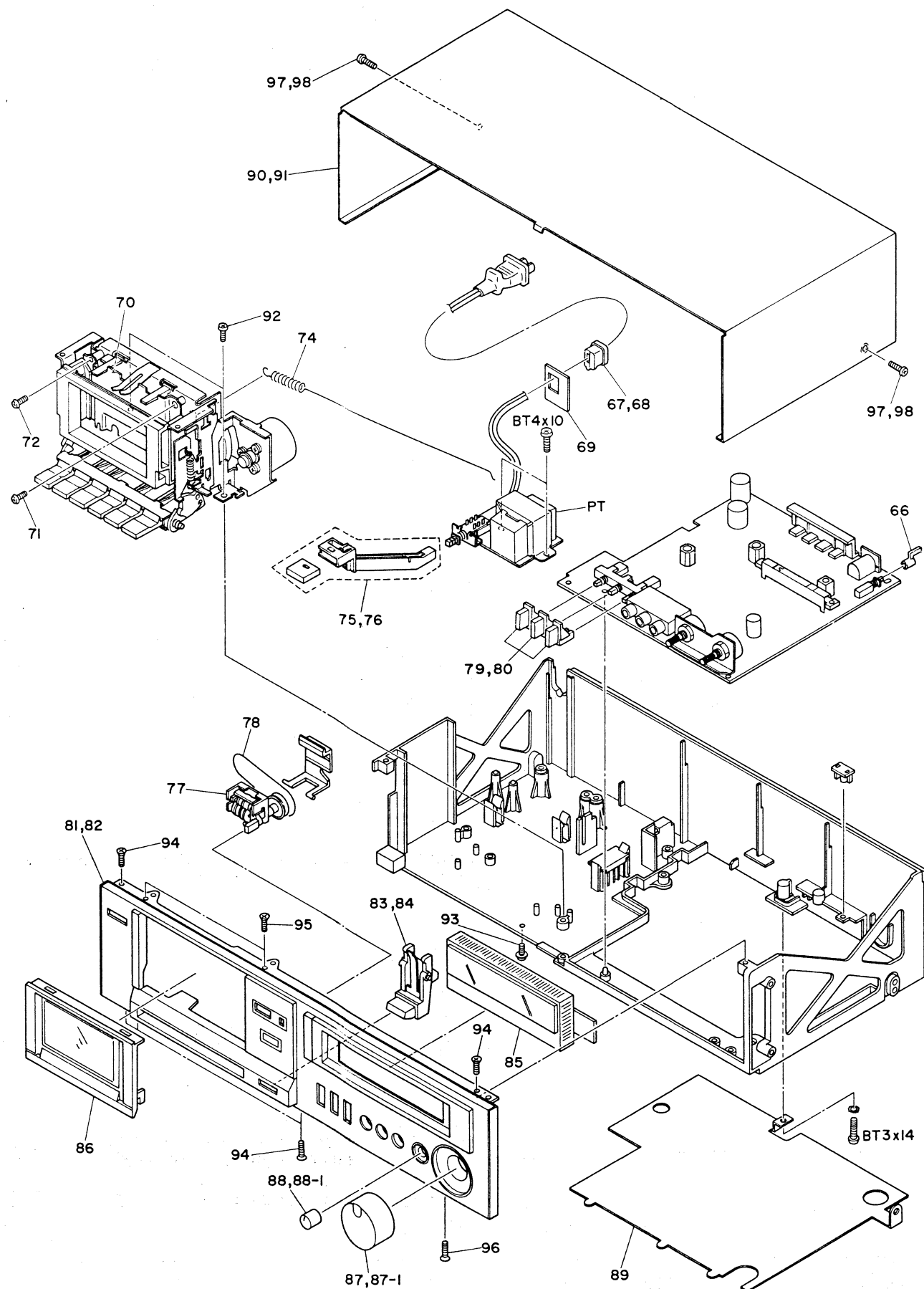
## EXPLODED VIEW (Cassette Chassis)



Note : Components marked without numbers in this drawing are not specified as replacement parts.













EXPLODED VIEW (Cabinet)



REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
RESISTORS					
RT 1LR	5007477	SEMI VARIABLE 10KOHM	S 1	5623435	SLIDE SWITCH (REC./P.B.)
RT 2LR	5007477	SEMI VARIABLE 10KOHM	S 2-4	5634396	PUSH SWITCH (TAPE SELECTOR, DOLBY NR)
RT 3	5007475	SEMI VARIABLE 2.2KOHM	S 5	5633561	PUSH SWITCH (MUTING)
RT 4LR	5007481	SEMI VARIABLE 100KOHM	S 6	5637038	PUSH SWITCH (POWER)
RV 1	5000617	VARIABLE RESISTOR 50KOHM (A)	S 7	5633311	PUSH SWITCH (INPUT SELECTOR) (FS, AU, W)
RV 2	5000851	VARIABLE RESISTOR 100KOHM (B)	△ S 8	5605121	ROTARY SWITCH (VOLTAGE SELECTOR) (W)
SEMI-CONDUCTORS			FOR ACCESSORIES		
D 1LR	5331502	DIODE 1K34ALF		7740321	HEAD CLEANING STICK
D 3-5	5331422	DIODE SM-1A-02		5895501	PATCH CORD
D13U-132	5330574	DIODE 1S2473 (FS, AU, W)	△	5662021	SOCKET ADAPTER (W)
IC 1	5352661	IC TA7639P	FOR CASSETTE DECK ASSEMBLY [GP-40A (FS, BS, AU, W) GP-40B (U, C)]		
IC 2LR	5352591	IC NE646B	1	0948492	HALL - 2MMD
LED1	5380631	LED SEL1112H	2	7339411	HEAD PLATE ASSEMBLY
Q 1LR	5321295	TRANSISTOR 2SC1740E	3	6758872	HEAD PLATE
Q 2LR	5321295	TRANSISTOR 2SC1740E	4	5449021	RECORD PLAYBACK HEAD
Q 3LR	5322621	TRANSISTOR 2SC2320E	5	5445351	ERASE HEAD
Q 4	5322651	TRANSISTOR 2SD667C	6	6321733	HEAD SPRING C
Q 5	5320643	TRANSISTOR 2SC1162C (U)	7	7779921	WASHER
Q 5	5321301	TRANSISTOR 2SC1061 (C, FS, BS, AU, W)	8	7574844	COLLAR
Q 6	5322921	TRANSISTOR 2SA854P (FS, AU, W)	9	7781001	SCREW
ZD 1	5330841	ZENER DIODE NDS.1E-B	10	7768182	SPACER
ZD 2	5330531	ZENER DIODE SILICON HZ-12A 10MHZ 400MW	11	7768181	HEAD SPACER
ZD3	5330482	ZENER DIODE AW01-7	12	6545777	HEAD PLATE SPRING
ZD4	5330531	ZENER DIODE HZ-12A	13	6532872	LEAF SPRING
TRANSFORMERS			14	6383621	PRESSURE ROLLER ARM ASSEMBLY
△ PT	5212492	POWER TRANSFORMER (U)	15	6545766	SPRING FOR PRESSURE ROLLER ARM
△ PT	5212592	POWER TRANSFORMER (C)	16	7786219	POLYESTER WASHER
△ PT	5211932	POWER TRANSFORMER (AU)	17	6752873	RECORD PREVENTION ARM
△ PT	5212593	POWER TRANSFORMER (FS)	18	7315366	BRAKE PLATE
△ PT	5212594	POWER TRANSFORMER (HS)	19	6566004	RUBBER FOR BRAKE
△ PT	5212941	POWER TRANSFORMER (W)	20	6545692	BRAKE SPRING
COILS			21	7315272	F.F ARM ASSEMBLY
L 1LR	5150364	CHOKE COIL 3.3 MH	22	6545683	SPRING
L 2	5260441	BIAS OSCILLATOR COIL	23	7315615	LAMP HOLDER
MISCELLANEOUS			24	6412504	TURNTABLE ASSEMBLY (SUPPLY)
△	5746443	POWER CORD (U, C)	25	6305891	BACK TENSION SPRING
△	5746158	POWER CORD (FS, W)	26	6413998	TURNTABLE ASSEMBLY
△	5746342	POWER CORD (HS)	27	7786115	POLYESTER WASHER
△	5746571	POWER CORD (AU)	28	7324313	EJECT SLIDER
△ F3	0591100	FUSE 200MA (W)	29	6300842	SPRING
△ F1	5720175	FUSE 0.8A (FS, BS, AU, W)	30	7338251	RECORD SLIDER
△ F2	5720105	FUSE 0.15A (W)	31	7315414	REWIND SLIDER
J1LR, J5	5679821	JACK ASSEMBLY (MIC, HEADPHONE)	32	7324484	PLAY SLIDER ASSEMBLY
J3LR, J4LR	5676261	PIN JACK ASSEMBLY (LINE IN, LINE OUT)	33	7315424	F.F SLIDER
J6	5651141	5P DIN SOCKET (FS, AU, W)	34	7315443	STOP SLIDER
LC 1LR	5161667	DOLBY FILTER	35	7324431	PAUSE SLIDER ASSEMBLY
LC 2LR	5120562	TRAP COIL	36	7315215	PAUSE LOCK PIECE
PL 1	5762036	PILOT LAMP (FOR POWER SWITCH) (C, FS, BS, AU, W)	37	6545711	SPRING
HL 1	5641141	REED RELAY (FS, AU, W)	38	7786179	POLYESTER WASHER
			39	7324421	RECORD PREVENTION PLATE

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
FOR CASSETTE DECK ASSEMBLY [GP-40A (FS, BS, AU, W) GP-40B (U, C)]					
40	6302821	SPRING FOR EJECT LEVER	69	7338651	BUSHING HOLDER
41	7324322	BRAKE FUNCTION SLIDER ASSEMBLY	70	7325213	CASSETTE METAL
42	6413915	AUTO STOP BLOCK ASSEMBLY	71	0678316	DT SCREW-2.6MMX16MM (BLACK)
43	6413509	TAKE UP ARM ASSEMBLY	72	7780915	BIND TAPPING SCREW-2MMX5MM
44	6300291	SPRING	73	6766301	RECORD ARM
45	7315083	BRAKE LEVER	74	6546982	RECORD SPRING
46	6324437	SPRING	75	6764152	PUSH BUTTON ASSEMBLY (POWER) (U)
47	6413512	REWIND ARM ASSEMBLY	76	6764154	PUSH BUTTON ASSEMBLY (POWER) (C, FS, BS, AU, W)
48	6322473	SPRING	77	5559481	COUNTER
49	7315283	REWIND ARM HOLDER	78	6354601	BELT
50	6373603	FLYWHEEL ASSEMBLY	79	6053615	PUSH BUTTON (TAPE, DOLBY NR) (U, C)
51	7778847	POLY SLIDER WASHER	80	6053613	PUSH BUTTON (TAPE, DOLBY NR) (FS, BS, AU, W)
52	7778848	POLY SLIDER WASHER	81	6766271	FRONT FRAME ASSEMBLY (U, C, AU, W)
53	7772623	SPRING	82	6766272	FRONT FRAME ASSEMBLY (FS, BS)
54	7766623	POLY SLIDER WASHER	83	6054231	PUSH BUTTON (EJECT) (U)
55	6357403	FLYWHEEL BELT	84	6054241	PUSH BUTTON (EJECT) (C, FS, BS, AU, W)
56	6355218	BELT	85	5553181	LEVEL METER
57	6530925	THRUST SUPPORT	86	6093034	CASSETTE DOOR
58	5576534	MOTOR ASSEMBLY	87	6286591	KNOB ASSEMBLY (RECORD LEVEL) (U)
59	6576084	RUBBER PLATE	87-1	6288183	KNOB ASSEMBLY (RECORD LEVEL) (C, FS, BS, AU, W)
60	7539002	SCREW FOR MOTOR MOUNTING	88	6288581	KNOB ASSEMBLY (REC BALANCE) (U)
61	7328676	BUTTON ASSEMBLY (U, C)	88-1	6288303	KNOB ASSEMBLY (REC BALANCE) (C, FS, BS, AU, W)
62	7328673	BUTTON ASSEMBLY (FS, BS, AU, W)	89	6044391	BOTTOM COVER
63	6768371	CASSETTE HOLDER	90	6044402	UPPER COVER (U, C)
64	6545937	SPRING	91	6044401	UPPER COVER (FS, BS, AU, W)
65	6763431	DAMPER ASSEMBLY	92	8699412	BIND TAPPING SCREW-3MMX12MM (BLACK)
MISCELLANEOUS			93	7781131	B TIGHTING SCREW-3MMX12MM
66	6050541	KNOB (INPUT SELECTOR) (FS, AU, W)	94	7781586	BT FLAT SCREW-3MMX12MM
△ 67	6794401	BUSHING (U, C, FS, AU, W)	95	7781582	FLAT SCREW-3MMX10MM (BLACK)
△ 68	6794411	BUSHING (BS)	96	7781587	BT FLAT SCREW-3MMX16MM
			97	8699410	BT BIND SCREW-3MMX10MM (BLACK) (U)
			98	8698410	BT BIND SCREW-3MMX10MM (C, FS, BS, AU, W)

Type of head					
P	Pan head screw		BT	Binding head tapping screw	
F	Flat countersunk head screw		BL	Bolt	
B	Binding head screw		W	Washer	
T	Round head tapping screw		E	"E" ring	
Length (L mm)					
Diameter (D mm)					

When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.



HITACHI SALES CORPORATION OF AMERICA  
 Eastern Regional Office  
 1200 Wall Street West, Lyndhurst, New Jersey 07071  
 Tel. 201-935-8980  
 Mid-Western Regional Office  
 1400 Morse Ave., Elk Grove Village, Ill. 60007  
 Tel. 312-593-1550  
 Southern Regional Office  
 510 Plaza Drive College Park, Georgia 30349  
 Tel. 404-763-0360  
 Western Regional Office  
 401 West Artesia Boulevard, Compton, California 90220  
 Tel. 213-537-8383  
 HITACHI SALES CORPORATION OF HAWAII, INC  
 3219 Koapaka Street, Honolulu, Hawaii 96819, U.S.A.  
 Tel. 808-836-3621

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 3300 Trans Canada Highway Pointe Claire, Quebec, H9R1B1, Canada  
 Tel. 514-697-9150

HITACHI SALES EUROPA GmbH  
 2 Hamburg 54, Kleine Bahnstraße 8, West Germany  
 Tel. 850 60 71-75  
 HITACHI SALES (U.K.) Ltd.  
 Hitachi House, Station Road, Hayes, Middlesex UB3 4DR, England  
 Tel. 01-848-8787 (Service Centre : 01-848-3551)

HITACHI SALES SCANDINAVIA AB  
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 Tel. 08-98 52 80

HITACHI SALES NORWAY A/S  
 Oerebekk 1620 Gressvik P.O. Box 46 N-1601 Fredrikstad, Norway  
 Tel. 032-28050

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 Box 151, SF-15100 Lahti 10, Finland  
 Tel. Lahti 44 241

HITACHI SALES A/S  
 Kuldysen 13, DK-2630 Taastrup, Denmark  
 Tel. 02-999200

HITACHI SALES A.G.  
 5600 Lenzburg, Switzerland  
 Tel. 064-513621

HITACHI-FRANCE (Radio-Télévision Electro-Ménager) S.A.  
 9, Boulevard Ney 75018, Paris, France  
 Tel. 201-25-00

HITACHI SALES WARENHANDELS GMBH  
 A-1180/Wien, Kreuzgasse 27  
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HITACHI SALES AUSTRALIA Pty Ltd.  
 153 Keys Road, Moorabbin, Victoria 3189 Australia  
 Tel. 95-8722

HITACHI Ltd. TOKYO JAPAN  
 Head Office : 5-1, 1-chome, Marunouchi, Chiyoda-ku, Tokyo  
 Tel. Tokyo (212) 1111 (80 lines)  
 Cable Address : "HITACHY" TOKYO  
 Codes : All Codes Used

D-E10 TK No. 1526E TOKAI

U, C, FS, BS, AU, W